

## REMARKS

Further and favorable reconsideration is respectfully requested in view of the foregoing amendments and following remarks.

Claim 1 has been amended to more clearly set forth the method, in response to the Examiner's rejection under 35 U.S.C. § 112. Support for the amendment is found on page 7, lines 7-13 of Applicants' specification. Therefore, no new matter has been added to the application.

The rejection of claims 1-4 and 6 as being indefinite under 35 U.S.C. § 112, second paragraph has been obviated by the above-discussed claim amendment.

The patentability of the present invention over the disclosures of the references relied upon by the Examiner in rejecting the claims will be apparent upon consideration of the following remarks.

Thus, the rejection of claims 1-3 under 35 U.S.C. § 102(b) as being anticipated by JP '647 is respectfully traversed.

The Examiner takes the position that JP '247 discloses a process wherein soy milk which comprises an emulsified mixture [of] soy protein, soy fat, and water (inherently already emulsified naturally), and the addition of a coagulant in solution, to prepare a bean curd which is formed into a bag and deep fried in oil.

Applicants' invention provides an efficient process for preparing a deep-fried bean curd pouch, wherein a solution of a coagulant is added after emulsifying a soybean protein, a fat ingredient and water. This process is quite different from a process which uses soybean milk extracted from whole soybeans, and uses simple operations. (See page 3, lines 11-19 of Applicants' specification.) Traditional soy milk is a stable emulsion of oil, water and protein and is simply an aqueous extract of whole soybeans. (See attachment comprising an excerpt from Wikipedia.)

The Examiner states that JP '647 teaches soy milk, which the Examiner asserts is inherently emulsified. However, as stated above, traditional soy milk is simply an extract of whole soybeans. There is no teaching or suggestion in JP '647 of a positive step of emulsifying a soybean protein, a fat ingredient, and water, as required by Applicants' claims.

A main concept of Applicants' invention is that, after sufficiently emulsifying the soybean protein without the coagulant, then the soybean protein is rapidly reacted with

the highly reactive coagulant and the reaction is rapidly terminated, thus achieving the desired stability.

In a conventional process for producing deep-fried bean curd pouches, tofu produced by coagulating soy milk with a coagulant is cut into thin slices and deep-fried so that the slices puff up and expand. This process does not incorporate emulsifying a soybean protein, water and fat. Alternatively, in recent industrial mass production processes of deep-fried bean curd pouches, thermocoagulable soybean proteins, such as soybean protein isolate, is mixed with water and a fat ingredient. The resulting mixture is homogenized to obtain a dough material, the dough material is molded and deep-fried so that the dough material puffs up and expands. In the latter (mass production) process, the steps for soy milk production and coagulation of soy milk are omitted.

However, the products obtained by the recent mass production process have problems, such as harder mouth-feel and inferior bite-off property, as compared with the product obtained by the conventional process, discussed above. In order to improve such problems, the addition of a coagulant has been proposed. However, when a coagulant is added to the mass production process, discussed above, another problem known as “suwari” results. (See page 4, lines 5-9 of Applicants’ specification.) This problem does not occur in a conventional process or a mass production process without a coagulant.

The purpose of Applicants’ invention is to solve the problem of “suwari”. That is, Applicants’ invention is directed to a mass production process using a coagulant.

As discussed above, the timing of the addition of the coagulant is very important in Applicants’ claimed method. Applicants’ method is characterized by adding a coagulant *after* mixing/ emulsifying a soybean protein, a fat ingredient and water, as set forth in Applicants’ claim 1. Thus, by employing Applicants’ recited method, even when a dough material is allowed to stand for a long period of time, the extension of the product is not deteriorated and a deep-fried bean curd pouch having good extension can be stably and efficiently produced.

JP ‘647 is characterized by reacting transglutaminase with soybean milk or soy milk and a coagulant to obtain tofu in a *conventional* process for producing a deep-fried pouch. As discussed above, this reference clearly relates to a *conventional* process, rather than a mass production process. Specifically, the reference does not teach or suggest emulsifying a soybean protein, a fat ingredient, and water, as required by Applicants’

claims. Furthermore, JP '647 does not teach or suggest the timing of the addition of the coagulant. Specifically, it is essential to Applicants' invention that after sufficiently emulsifying the soybean protein without the coagulant, the soybean protein is then reacted with the coagulant. This essential order is not taught or suggested by JP '647. Additionally, as mentioned previously, the problem of "suwari" does not occur in a conventional process or a mass production process without a coagulant. Therefore, since JP '647 is directed to a conventional process, the reference fails to even mention the problem of "suwari", and thus clearly fails to teach or suggest a solution to the problem.

For these reasons, the invention of claims 1-3 is clearly patentable over JP '647.

The rejection of claim 4 under 35 U.S.C. § 103(a) as being unpatentable over JP '647 is respectfully traversed.

The Examiner admits that JP '647 is silent regarding the ratio of coagulant to soy protein, as recited in Applicants' claim 4. The Examiner takes the position that this determination would have been well within the purview of one having ordinary skill in the art at the time of the invention.

The comments set forth above concerning JP '647 are equally applicable to this rejection. Since claim 4 is directly dependent on claim 1, the subject matter of claim 4 is patentable over JP '647 for the same reasons that the subject matter of claim 1 is patentable over this reference.

The rejection of claims 1-4 and 6 under 35 U.S.C. § 103(a) as being unpatentable over JP '647 taken together with JP '659 is respectfully traversed.

The Examiner states that if it is shown that JP '647 does not inherently provide for a soy milk containing fat, protein, and water that has been emulsified, the teachings of JP '659 should be noted. Specifically, the Examiner asserts that JP '659 teaches the preparation of a bean curd by first emulsifying soy milk so that soybean protein and soybean fats contained are uniformly dispersed to give a soybean milk in a uniform colloidal state, wherein a dispersant of a stabilized aqueous solution of magnesium chloride is added to the soybean milk. The Examiner takes the position that it would have been obvious, based on the teachings of JP '659, to employ an emulsifying step followed by a solution of coagulant for the advantages of the resulting bean curd.

The comments regarding JP '647, set forth above, are applicable to this rejection as well.

JP '659 discloses a process for producing tofu, wherein a fat ingredient and water are added to a coagulant to prepare an emulsion. This emulsion is then added to soy milk. On the other hand, in Applicants' invention, soybean protein and a fat ingredient is mixed with water to prepare an emulsion, followed by the addition of a coagulant. Thus, the process steps of JP '659 are completely different than Applicants' recited process.

Neither JP '647 nor JP '659, nor a combination thereof teach or suggest the limitations required by Applicants' claimed method.

For these reasons, the invention of claims 1-4 and 6 is clearly patentable over JP '647 taken together with JP '659.

The rejection of claims 1-4 and 6 under 35 U.S.C. § 103(a) as being unpatentable over Mother Earth News (1977 Article) taken together with JP '659 is respectfully traversed.

The Examiner takes the position that Mother Earth News discloses a process wherein tofu slices are deep-fried and cut to form pouches. The Examiner relies on JP '659 for the reasons set forth above. The Examiner states that it would have been obvious to one having ordinary skill in the art to have specifically employed the emulsifying step followed by a solution of coagulant for the advantages of the resulting bean curd.

Mother Earth News fails to teach or suggest Applicants' claimed method. Specifically, Mother Earth News fails to teach or suggest a process comprising emulsifying a soybean protein, a fat ingredient, and water, followed by addition of a solution of a coagulant.

JP '659 fails to remedy the deficiencies of the Mother Earth News reference. As discussed above, JP '659 discloses a process for producing tofu, wherein a fat ingredient and water are added to a coagulant to prepare an emulsion. This emulsion is then added to soy milk. On the other hand, in Applicants' invention, soybean protein and a fat ingredient is mixed with water to prepare an emulsion, followed by the addition of a coagulant. Thus, the process steps of JP '659 are completely different than Applicants' recited process.

Neither Mother Earth News, nor JP '659, nor a combination thereof teach or suggest the limitations required by Applicants' claimed method.


For these reasons, the invention of claims 1-4 and 6 is clearly patentable over Mother Earth News taken together with JP '659.

Therefore, in view of the foregoing amendments and remarks, it is submitted that each of the grounds of rejection set forth by the Examiner has been overcome, and that the application is in condition for allowance. Such allowance is solicited.

If, after reviewing this Amendment, the Examiner feels there are any issues remaining which must be resolved before the application can be passed to issue, the Examiner is respectfully requested to contact the undersigned by telephone in order to resolve such issues.

Respectfully submitted,

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# Soy milk

From Wikipedia, the free encyclopedia

**Soy milk** (also called **soymilk**, **soya milk**, **soybean milk**, **soy bean milk**, **soy drink**, or **soy beverage**) is a milk-like beverage made from soybeans.

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A can of Yeo's soy milk, poured into a glass

## Origins

This article or section needs **sources or references** that appear in credible, third-party publications. Alone, primary sources and sources affiliated with the subject of the article are not sufficient for an accurate encyclopedia article. Please include more appropriate citations from reliable sources.

Soy milk originated in China<sup>[1]</sup>, a region where soybean was native and used as food long before the existence of written records. Later on, the soybean and soybean foods were transplanted to Japan. Soybean or "vegetable" milk is reputed to have been discovered and developed by Liu An of the Han Dynasty in China about 164 B.C. Liu An is also credited with the development of "Doufu" (soybean curd) in China which 900 years later spread to Japan where it is known as "tofu".

Traditional soy milk, a stable emulsion of oil, water and protein, is simply an aqueous extract of whole soybeans. The liquid is produced by soaking dry soybeans, and grinding them with water. Soy milk contains about the same proportion of protein as cow's milk~ around 3.5%; also 2% fat, 2.9% carbohydrate and 0.5% ash. Soy milk can be made at home with traditional kitchen tools or with a soy milk machine.

## Nomenclature

The Mandarin Chinese term for what American English speakers call soy milk is *Dòu jiāng* (Chinese: 豆浆; lit. "*soy juice*"). In Western nations, soy milk is more commonly sold under the term *Dòu nǎi* (豆奶; lit. "*soy milk*") than *dòu jiāng* (豆浆), although the two terms are often used interchangeably.